

REMARKS

Claims 1, 2, 8, 9, 11, and 13 are amended. Claims 1-14 are pending in the application.

Claim Objections to Claim 8

The typographical error to claim 8 (rather than claim 7 as indicated by the examiner) has been duly corrected.

Claim Rejections – 35 U.S.C. § 112

As pointed out by the examiner, the further steps in claims 9, 11 and 13 only makes sense if they occur after the etching of the pyramidal apertures in the first layer of the doped silicon. Further, claim 2 was also not clearly defined. Therefore claims 1, 2, 9, 11 and 13 had been amended such that the step of etching the pyramidal apertures in the first layer of the doped silicon is now differentiated from the step of etching away the first layer of the doped silicon.

Claim Rejections – 35 U.S.C. § 102.35 U.S.C. § 103

Busta

The disclosure of Busta which the examiner considers relevant is the first method commencing in column 2. In column 2, lines 38-39, Busta teaches that the starting silicon layer can be an n-type or p-type silicon wafer. The next layer is a diffused p+ impurity layer (see column 2, line 60) to form an etch stop layer. P+ etch stops such as boron etch stops in silicon are commonly used and involve the introduction of an impurity.

In the applicant's invention, we use oppositely doped silicon layers forming a diode junction. The diode junction acts as a stop for the electrochemical etch.

Busta does not disclose the deposition of a second layer of doped silicon onto an oppositely doped first layer of silicon. Busta also does not teach a diode junction acting as an etch stop. Therefore the applicant's invention is not anticipated by Busta under 35 U.S.C. § 102.

Further, since Busta teaches a p+ etch stop and not a diode junction etch stop, it would not be obvious to a person skilled in the art to use an electrochemical etch. Under 35 U.S.C. § 103, it would also not be obvious to one skilled in the art that the type of doping can be reversed.

Gray and Manalis

Gray teaches a method of forming a probe tip by etching pyramidal cavities into doped silicon then depositing probe material into the cavity and etching away the doped silicon. In all cases the need to prevent etching of the probe material is identified. The main embodiments involve depositing a passivation layer between the doped silicon and the probe material to protect the probe material from being etched away together with the doped silicon.

The only other example in Gray indicates only that the probe material itself should be impervious to the etch used to etch the doped silicon. Even though Manalis teaches making probe tips from doped silicon, without a passivation layer to protect the probe material, it would not be obvious to a person skilled in the art to think of an oppositely doped silicon but rather another material other than silicon for the probe.

Therefore, the applicant's invention should not be rejected under 35 U.S.C. § 103 as being unpatentable over Gray and Manalis.

The applicant submits that the above arguments and amendments overcome the examiner's objections.

Respectfully submitted,

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